Microsoft Digital Identity Update

Thesis

- Web services create inflection point for connected systems
- Growing identity challenges and danger creates increasing friction
  - Organized international identity theft and phraud
  - Password fatigue
  - Privacy concerns
- Removing friction benefits everyone - including Microsoft
- Solving identity problem essential to unleash potential of Web services

What is a digital identity?

- A set of **claims** someone makes about me
- Many identities for many uses
- Required for transactions in real world and online
- Useful to distinguish from **profiles**

Identity is Matched to Context

In Context

- Bank card at ATM
- Gov't ID at border check
- Coffee card at coffee stand
- MSN Passport at HotMail

Out of Context?

- Gov't ID at ATM
- SSN as Student ID
- MSN Passport at eBay

Out of Context

- Coffee card at border check

Lessons from Passport

- Passport designed to solve two problems
  - Identity provider for MSN
    - 250M+ users, 1 billion logons per day
  - Identity provider for the Internet
    - Unsuccessful
- Learning: solution must be different than Passport

The Laws of Identity

An Industry Dialog

1. User control and consent
2. Minimal disclosure for a defined use
3. Justifiable parties
4. Directional identity
5. Pluralism of operators and technologies
6. Human integration
7. Consistent experience across contexts

Join the discussion at www.identityblog.com

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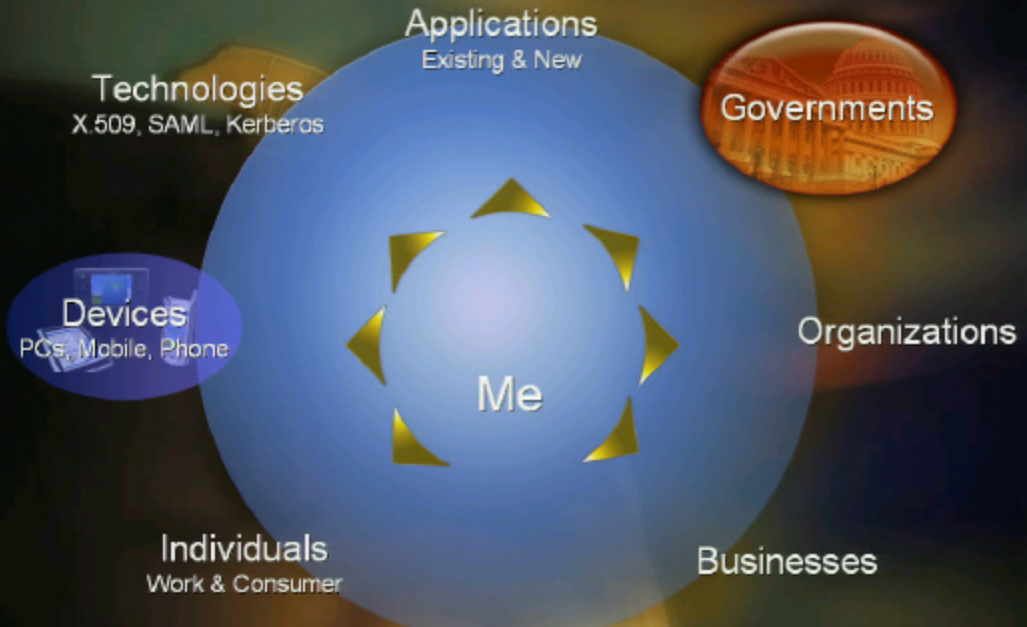
The Laws Define a **Metasystem**



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The Laws Define a **Metasystem**

Identity Metasystem

- Consistent way to use multiple identity systems
  - Remove friction without requiring everyone agree on one identity technology for everything
  - Leverage current successes
  - Enable us to move from past to future
- Four key characteristics
  - Negotiation
  - Encapsulating protocol
  - Claims transformation
  - Consistent user experience

Metasystem Players

Identity Providers
Issue identities

Relying Parties
Require identities

Subjects
Individuals and other entities about whom claims are made

Negotiation

- Enable relying party, subject, and identity provider to negotiate
  - Which claims are required
  - Who can make them
  - What type of technology is acceptable
  - Under what conditions claims will be issued
  - How parties prove who they are
  - How information will be used

Encapsulating Protocol

- Technology-agnostic way to exchange policies and claims between Identity Provider and Relying Party
- Content and meaning of what is exchanged determined by participants, not metasystem

Claims Transformation

- Trusted way to change one set of claims into another
  - Specialized server + policy and trust framework for translating foreign claims to locally relevant claims
- Bridge organizational and technical boundaries
  - Transform semantics
    - "Microsoft Employee" -> "Book Purchase OK"
  - Transform formats
    - X.509, SAML1.0, SAML 2.0, SXIP, LID, etc
- Provides interoperability needed today plus flexibility required for future evolution

Consistent User Experience

- Single experience across multiple systems
  - Two-way authentication
  - Uniform logon and registration experience
  - User consent to disclosure of claims
  - Policies exposed and accessible to user
- Reduced cognitive load on user
  - Make identity experience “real” and tangible instead of ad-hoc
  - Predictable - better informed decision making

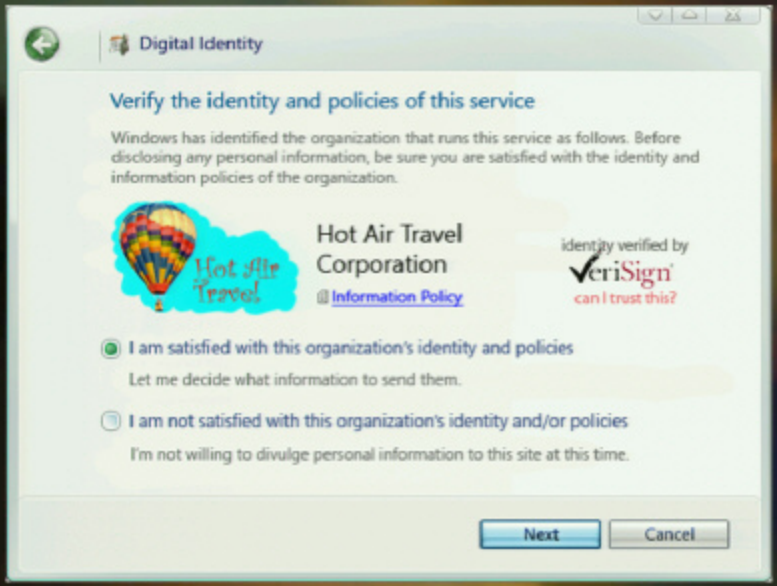
An Identity Metasystem Architecture

- Microsoft worked with industry to develop protocols that enable an identity metasystem: WS-* Web Services
  - Encapsulating protocol and claims transformation: WS-Trust
  - Negotiation: WS-MetadataExchange and WS-SecurityPolicy
- Only technology we know of specifically designed to satisfy requirements of an identity metasystem

Microsoft's Implementation

- "InfoCard" identity selector
  - Component of WinFX, usable by any application
  - Hardened against tampering, spoofing
- "InfoCard" simple identity provider
  - Self-issued identity for individuals running on PCs
  - Uses strong public key-based authentication – user does not disclose passwords to relying parties
- Active Directory managed identity provider
  - Plug Active Directory users into the metasystem
  - Full set of policy controls to manage use of simple identities and Active Directory identities
- "Indigo" for building distributed applications and implementing relying party services

Preview – “InfoCard”



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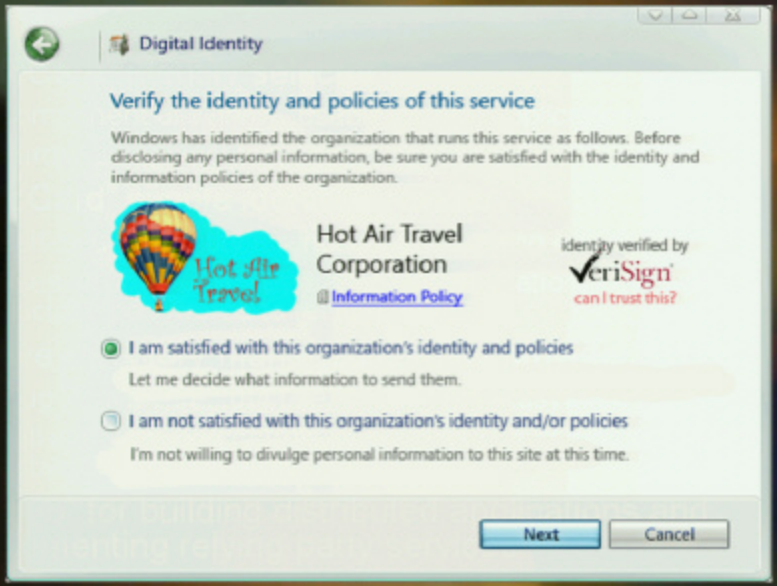

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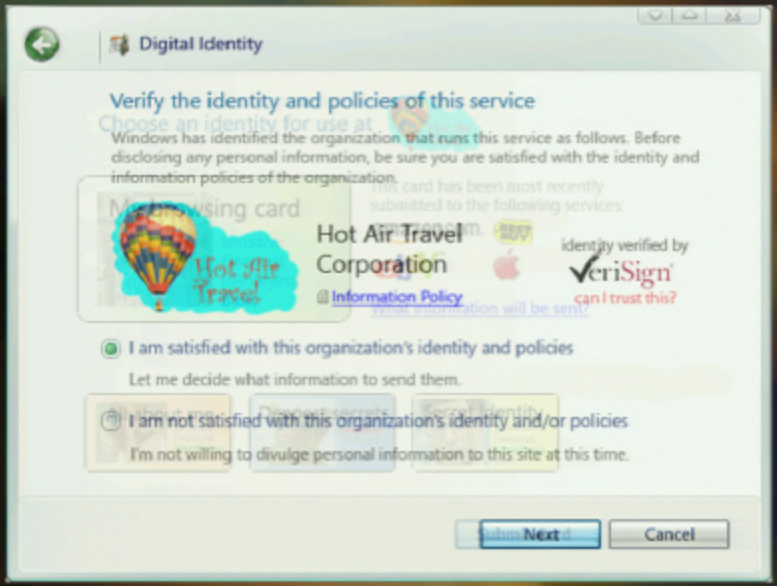

Microsoft's Implementation

- Data stored for each card in card collection
  - Name, logo, names of claims available (not values)
  - Address of identity provider, required credential
- Data stored in simple identity provider
  - Name, address, email, telephone, age, gender
  - User must opt-in
- InfoCard data not visible to applications
  - Stored in files encrypted under system key
  - User interface runs on separate desktop
- Managed identity provider may store information needed to generate claims

Microsoft's Implementation

- Fully interoperable via published protocols
  - With other identity selector implementations
  - With other relying party implementations
  - With other identity provider implementations
- Detailed implementation guide available

Summary

- Laws of Identity define an identity metasystem
- WS-* makes possible an identity metasystem using widely-accepted published protocols
- Microsoft implementing full support for an open identity metasystem in Windows
- Microsoft not launching Son of Passport

- *Identity metasystem has potential to remove friction, accelerate growth of connectivity*
- *Let the identity big bang begin!*

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Microsoft Implementation of an Identity Metasystem using WS-*

InfoCard Team

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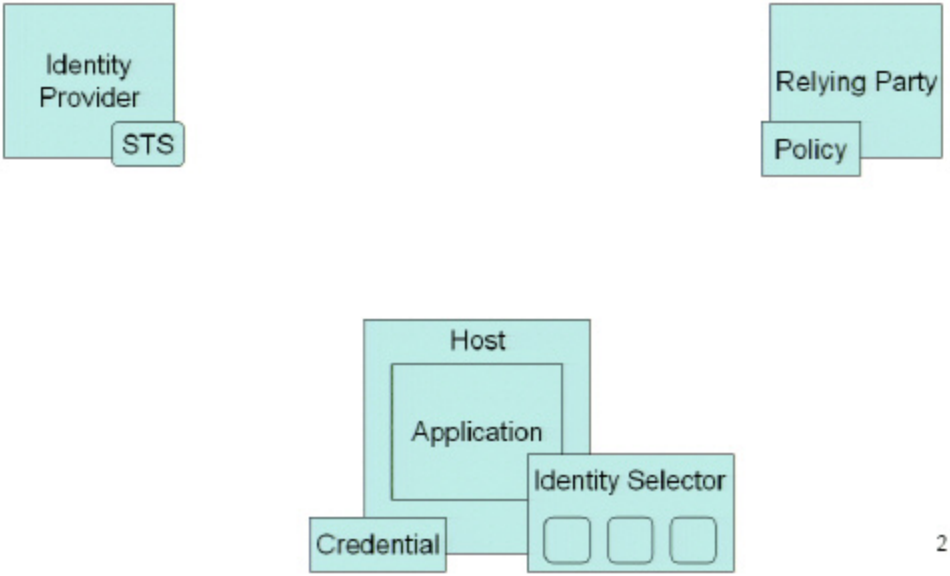
Identity Provider
STS
Relying Party
Policy
Host
Application
Identity Selector
Credential

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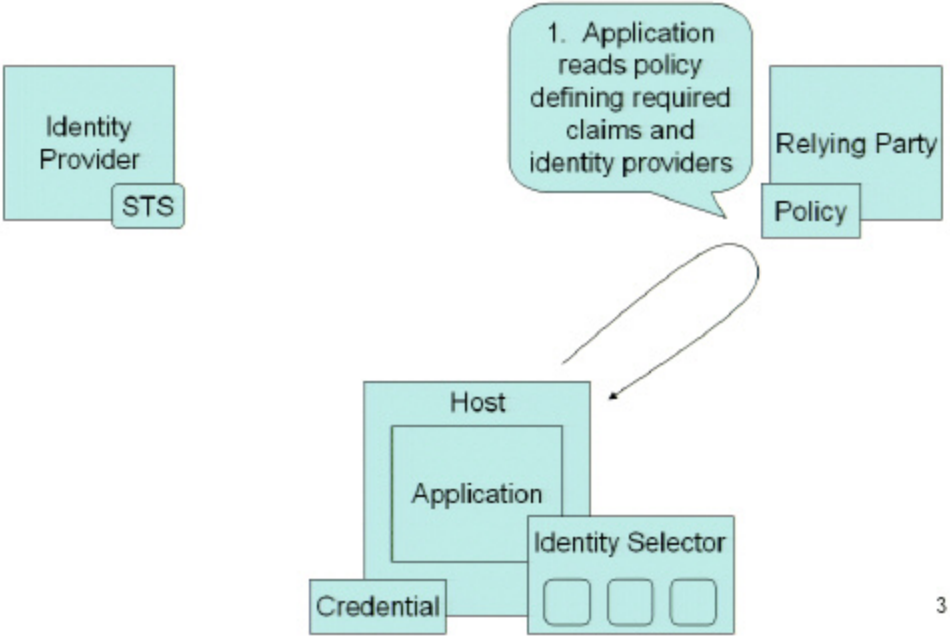
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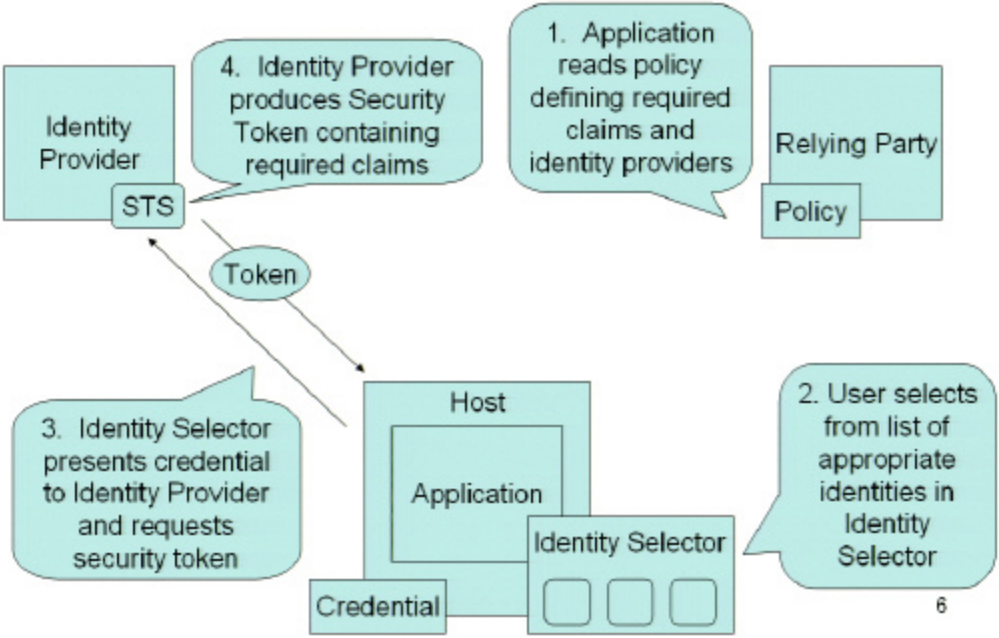
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2. User selects from list of appropriate identities in Identity Selector

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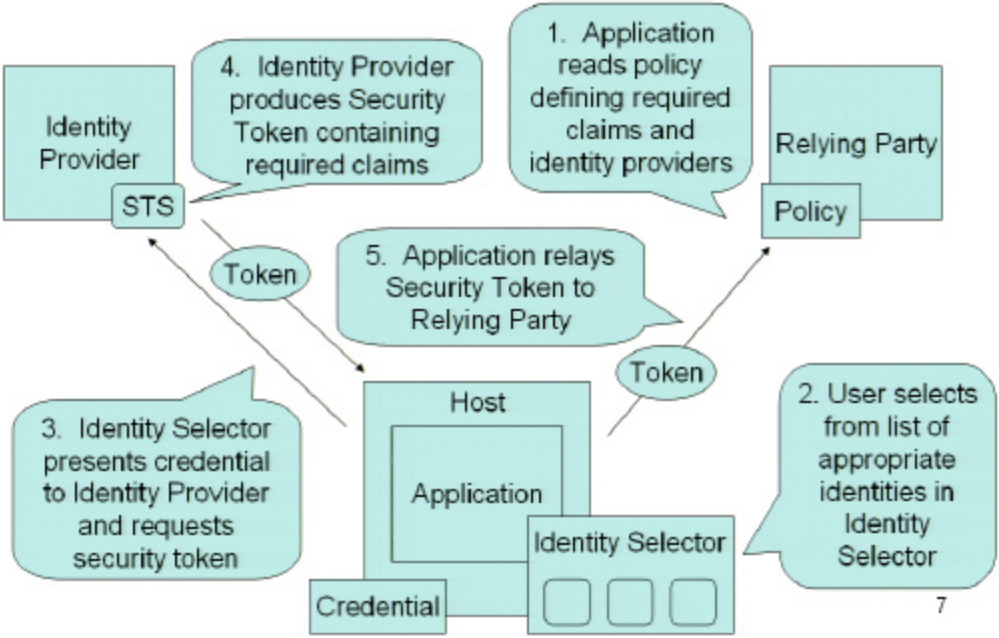
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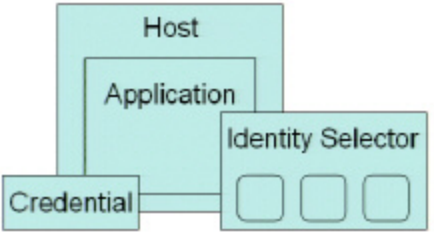

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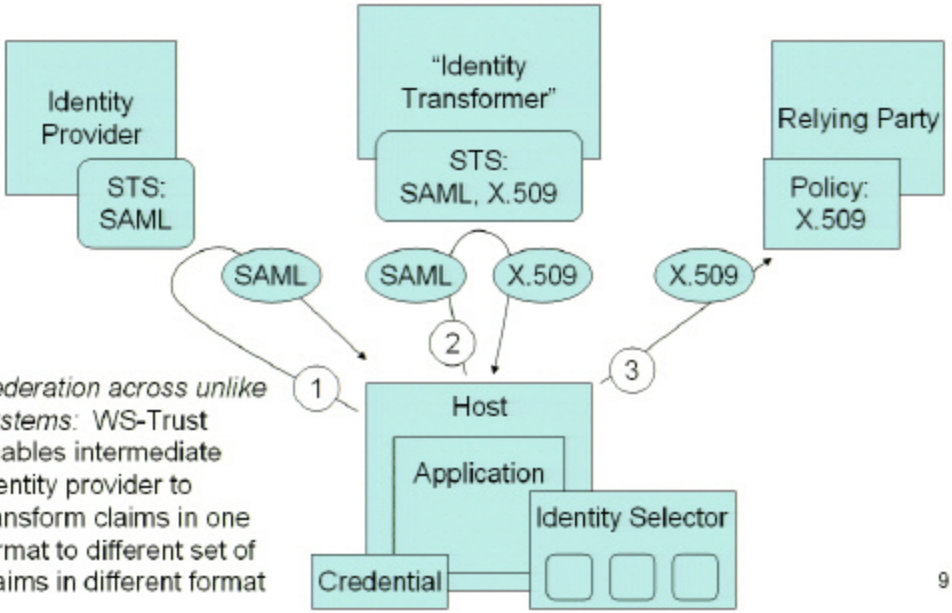

Federation across unlike systems: WS-Trust enables intermediate identity provider to transform claims in one format to different set of claims in different format

Identity Selector

- User interface representation of identities
  - Consistent and predictable experience across Identity Providers and Relying Parties
  - Must be safe and trusted
- Show identities available for use at Relying Party
- Show verified identity of Relying Party
  - Facilitate 2-way authentication
- Show use policy of Relying Party
- User consents to disclosure of claims

UX Prototypes

Microsoft Internet Explorer

http://www.amazon.com

Type to Search

File Edit View Favorites Tools Help

Search Favorites

amazon.com | Your Store | See All 31 Product Categories | Your Account | Cart | Wish List | Help

Gift Certificates | International | New Releases | Top Sellers | Today's Deals | Sell Your Stuff

Search Amazon.com GO | Web Search GO

Hello. Sign in to get personalized recommendations. New customer? Start here.

BROWSE

Add Favorites

Featured Stores
- Apparel & Accessories
- Beauty
- DVD's TV Central
- Electronics
- Jewelry & Watches
- Shoes

New Stores
In Beta (What's this?)
- Musical Instruments
- Gourmet Food
- Health & Personal Care
- Sports & Outdoors
- Yellow Pages

Books, Music, DVD
- Books
- DVD
- Magazine Subscriptions
- Music
- Video

Electronics & Office
- Electronics
- Audio & Video

Oprah's Book Club® Is Back!

Oprah just announced her big summer collection--*A Summer of Faulkner*. Oprah's love of the classics continues with this three-book collection of William Faulkner's early works.

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Ready for Big Trouble?

The Grundig FR200 is ready for emergencies. Crank the handle for AM/FM and shortwave radio or even a flashlight--no power needed for Grundig.

NEW RELEASES

Already a customer? Sign in to see your **New Releases**.

Done

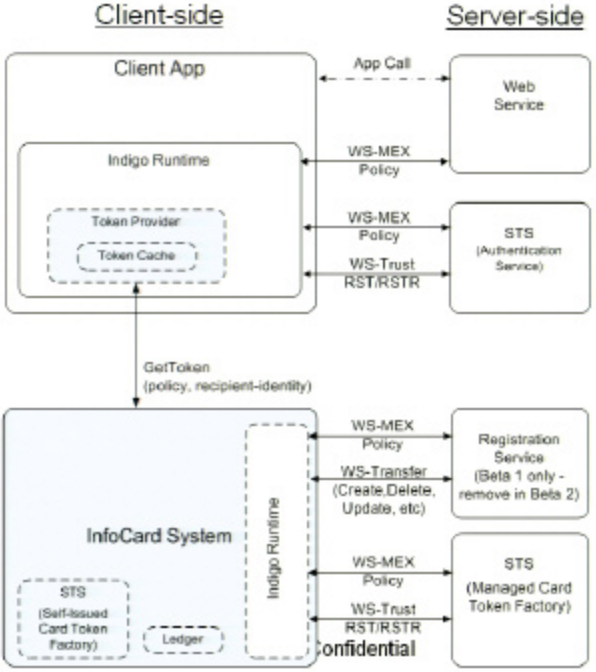
Internet

Done

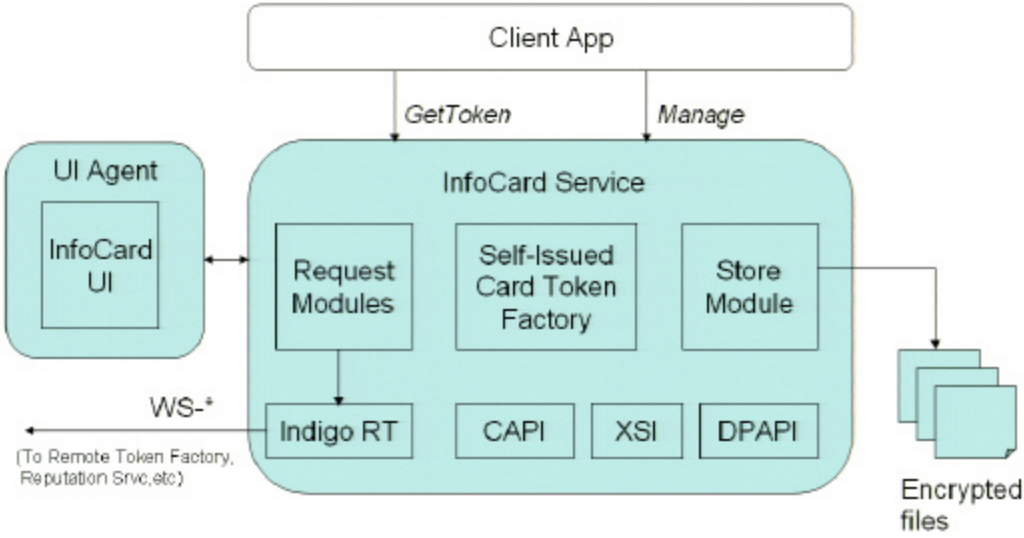
Internet

UX Prototypes

“InfoCard” Architecture Overview

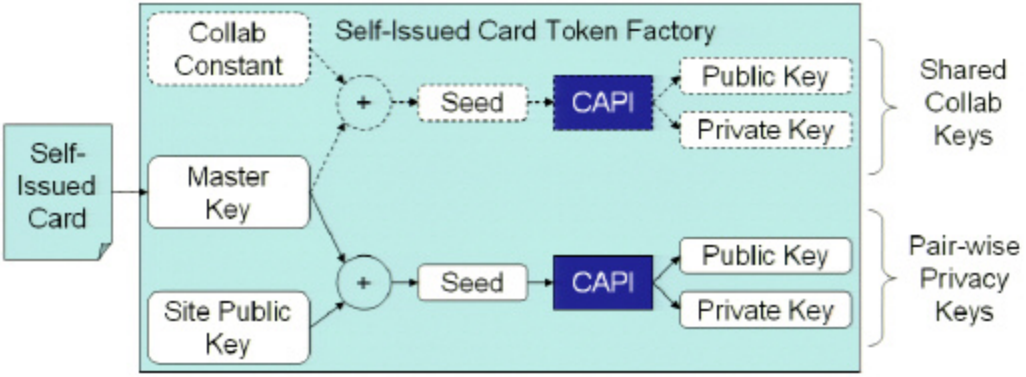


“InfoCard” Protected Subsystem



Curved boxes represent process boundaries

Self-Issued Card Key Generation



- Master key per card
  - Unique pair-wise key derived for each site (no tracking possible)
  - Unique shared key derived for collab (e.g. P2P)
- Easy to roam
  - Only need to roam master key once to each PC
  - Per-site pair-wise keys can be computed dynamically

Roaming Scenarios

- Ad-hoc roaming to trusted computers
  - Manual import/export using removal storage
  - Master keys only need to be roamed once
- Ledger is not roamed

- Future
  - Roam using “Portable STS”
  - Roam using “Vault” in the cloud
  - Dynamic ledger rebuilding

Questions?

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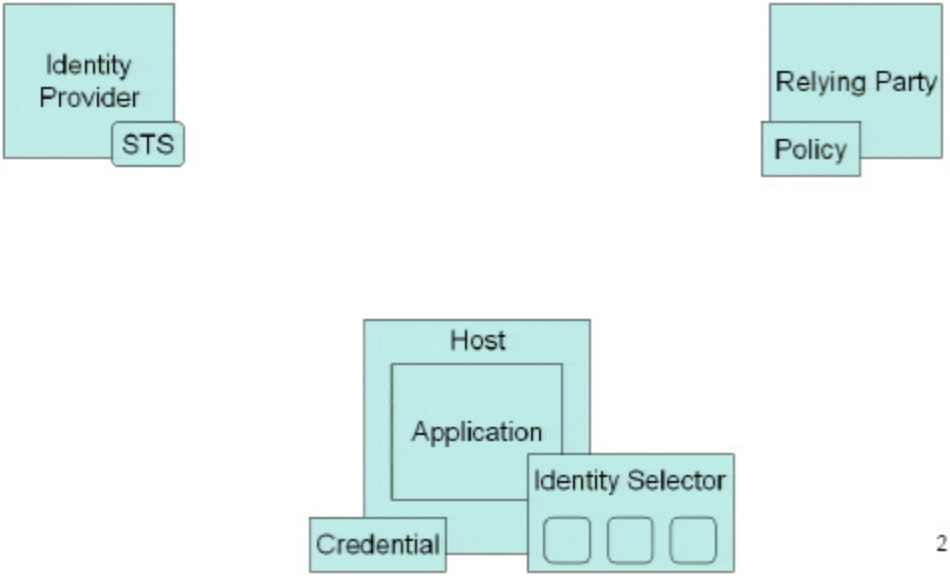
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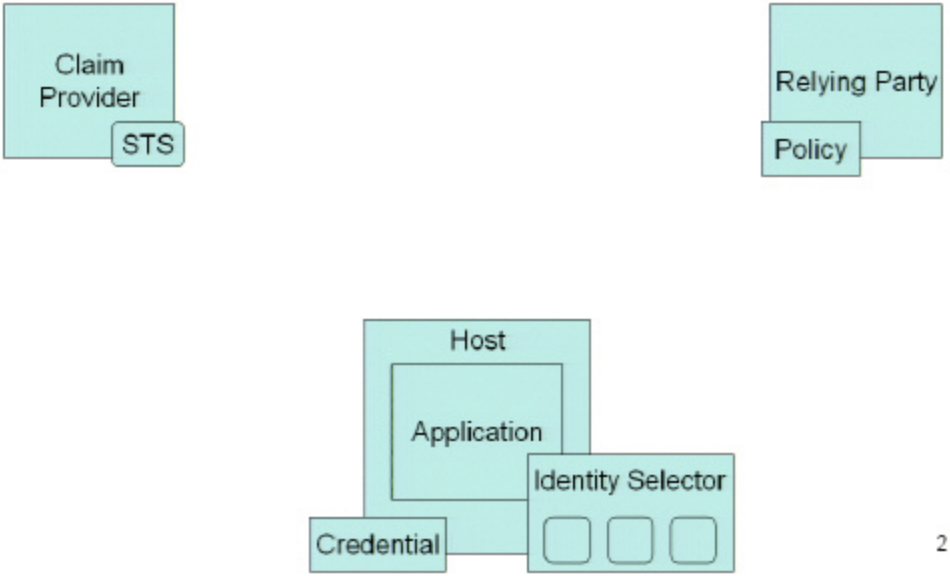
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